

# Medical Endocrinology and Reproduction

## Course Syllabus

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**Course Number:** GMS 6419

**Credit Hours:** 3 credit hours

**Course Format:** This online course is tailored for asynchronous distance learners.

### COURSE DESCRIPTION

Medical Endocrinology and Reproduction (GMS6419) teaches the functions of the endocrine and reproductive systems of human body at a level required for clinical medicine and basic research in medical physiology. The course covers normal physiology, as well as selected diseases. Concepts are taught using a combination of lectures, online research assignments, and online problem sets. The research assignments are designed to help the student understand the integration of cardiovascular physiology with genetics, genomics, molecular biology, and cellular physiology as a basis for a better understanding of human disease. The ultimate goal is for students to develop an understanding of the integrated functions of the normal body and “problem solving” and “critical thinking” skills in evaluating clinical situations. Each recorded lecture lasts between 20 and 30 min.

### TARGET AUDIENCE

This course is designed to meet the needs of individuals wanting to pursue a career in medicine, biomedical research, or in teaching topics related to physiology and medicine. For example, this course is designed to provide critical knowledge for individuals who wish to teach cardiovascular physiology at the secondary and post-secondary levels. However, this course will also provide a foundation for students who are wishing to attain or enhance knowledge of medical endocrinology and reproduction.

### PREREQUISITES

This course requires a BA or BS and a strong science foundation with at least 5 full semester courses related to Biology, chemistry and/or physics. **A minimum undergraduate GPA = 2.0 is required for admission.** Co-enrollment or prior passing grade in GMS 6440 required for enrollment in this class.

### CONTACTS

Charles Wood, Ph.D., Professor and Chair, Department of Physiology and Functional Genomics. Please use the email function within Canvas to contact Dr. Wood.

### SCHEDULE

This is a self-paced course that is offered in the Spring, Summer and Fall semesters.

## **COURSE GOALS**

Physiology is the science of how the body functions, and is the basis for understanding modern clinical medicine and the biomedical sciences. This course will provide: 1) a foundation understanding of the basic functions of the endocrine system; 2) integration of individual facts in order to understand how organ systems work independently and interdependently in the body. One example of this integration is in the understanding of normal reproduction. Other examples covered in this course include understanding developmental anomalies in the endocrine system.

## **LEARNING OUTCOMES**

Upon completion of this course, students will be able to:

1. Understand the function of hormones, including the different endocrine axes and the processes that they control.
2. Understand the hormonal control of reproduction.
3. Understand how hormonal systems act in an integrated manner to regulate overall body functions.
4. Understand how failure of these normal physiologic functions and integrations are associated with some diseases.
5. Demonstrate the ability to apply physiological principles of clinical and basic science relevancy by multiple choice examinations, research assignments, and quiz exercises.

## **LEARNING RESOURCES**

1. Recorded video lectures with PowerPoint presentations will be provided on the course website.
2. Recorded video clinical correlation(s) and/or case studies relating to the basic science material.
3. Lecture notes for each video lecture are available as PDF downloads enabled for direct note taking.
4. Required text: Student may wish to supplement the course videos and PDF handout by purchasing an online version of 1. "*Berne & Levy Physiology, 7th Edition*" 2018. Author: Bruce M. Koeppen & Bruce A. Stanton. ISBN: 9780323393942. and 2. "*Ganong's Review of Medical Physiology, 25th Edition*" 2015. Author: Barrett et al. ISBN: 9780071825108 (free version: <https://accessmedicine.mhmedical.com/book.aspx?bookid=1587>).

## **COMMUNICATION WITH FACULTY**

If you have questions about the material or the course, please contact the course director (Dr. Wood) using the email function in Canvas.

## **STRUCTURE OF CONTENT**

The course content is structured into sub-topical groups of lectures that are accompanied by Problem Sets. Problem Sets are designed to help the student master the course material. These problem sets completed as take-home assignments, but are graded. There are 3 Functional Genomics Research Assignments, which are designed to help the student integrate the concepts of physiology with functional genomics and human diseases of genetic origin. These Research Assignments are also completed as take-home assignments and are also graded.

## **COURSE CALENDAR and RECOMMENDED TIME MANAGEMENT**

The videos and corresponding PDF notes are available throughout the entire time the course is open, from the first day through the end of the course on the day the grades are reported to the Registrar. However, the Exam is open ONLY during the window of time shown on the website. The course content lecture titles should be viewed in the order shown later in this syllabus.

## **EXAMINATION AND GRADING**

There will be one multiple-choice examination covering the material taught in the lectures. The exam will be monitored by ProctorU, a UF chosen service that allows the students to complete their exams at home while still ensuring academic integrity. Students will take the exam at a computer that meets the technical requirements of ProctorU, including a web cam and microphone. Students will make the arrangements for exam proctoring. The exam may be taken any time during the window of availability; however, it can only be taken once.

**We recommend you make an appointment with ProctorU at least two weeks in advance of your preferred exam date.** All costs of the exam are covered in the registration costs. Scores are reported as a percent. The points used to compute final grades will be determined after all assignments and the exam have been completed.

## **GRADING SCALE:**

A numerical grade will be given at the end of the course and will be scored as follows, per University of Florida standards:

93-100%	= A
90-92%	= A-
87-89%	= B+
83-86%	= B
80-82%	= B-
77-79%	= C+
73-76%	= C
70-72%	= C-
67-69%	= D+
63-66%	= D
<63%	= E

The final examination accounts for 20% of the total grade, Functional Genomics Research Assignments 30% of the total grade, and Problem Sets 50% of the grade.

## **GRADING POLICY**

There are no make-up exams unless otherwise granted by the course coordinator prior to an examination date. Failure to take an exam without prior permission from the course coordinator will be recorded as 0.

## ACADEMIC HONESTY

Please review the complete policy of the University of Florida regarding academic dishonesty, found in the online student handbook at: <http://graduateschool.ufl.edu/media/graduate-school/pdf-files/handbook.pdf> .

**Students are expected to abide by the [University of Florida Academic Honesty Guidelines](#) and to adhere to the following pledge:**

*"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*

On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

***"On my honor, I have neither given nor received unauthorized aid in doing this assignment."***

## IMPORTANT NOTICE ABOUT PLAGIARISM

Plagiarism is not tolerated at the University of Florida. Plagiarism may be punishable by expulsion from the course or the certificate program. If the plagiarism is detected after the certificate has been awarded, the certificate may be rescinded.

The University of Florida has an honor code that defines plagiarism as follows:

Section 3a: Plagiarism.

A student shall not represent as the student's own work all or any portion of the work of another. Plagiarism includes but is not limited to:

1. Quoting oral or written materials including but not limited to those found on the internet, whether published or unpublished, without proper attribution.
2. Submitting a document or assignment which in whole or in part is identical or substantially identical to a document or assignment not authored by the student.

Please note that intent is not an element of this kind of violation so it is important to take great care to complete the written assignments in your own words.

For a complete description of the UF Honor Code and procedures, please visit:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

For a good discussion about plagiarism and how to properly cite your sources, please visit:

<http://mediasite.video.ufl.edu/Mediasite/Play/adaa44500eaf460a84f238e6b9a558f9>

## COURSE EVALUATION POLICY

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

## **MEDICAL ENDOCRINOLOGY AND REPRODUCTION (3 credit hours)**

Lecture 1: Introduction to Endocrinology  
Lecture 2: Hypothalamus and Pituitary I  
Lecture 3: Hypothalamus and Pituitary II  
Problem Set 1: Hypothalamus and Pituitary

Lecture 4: Adrenal Medulla I  
Lecture 5: Adrenal Medulla II  
Problem Set 2: Adrenal Medulla

Lecture 6: Calcium/Phosphate Regulation I  
Lecture 7: Calcium/Phosphate Regulation II  
Lecture 8: Calcium/Phosphate Regulation III  
Lecture 9: Calcium/Phosphate Regulation IV  
Problem Set 3: Calcium/Phosphate Regulation

Lecture 10: Fluid Balance and Cardiovascular Control

Lecture 11: Growth Hormone I  
Lecture 12: Growth Hormone II

### **Functional Genomics Research Assignment 1: Pituitary Dwarfism**

Lecture 13: Glucose Regulation I  
Lecture 14: Glucose Regulation II  
Lecture 15: Glucose Regulation III  
Problem Set 4: Growth Hormone and Glucose Regulation

### **Functional Genomics Research Assignment 2: Type I Diabetes**

Lecture 16: Sexual Differentiation I  
Lecture 17: Sexual Differentiation II  
Problem Set 5: Sexual Differentiation

Lecture 18: Male I  
Lecture 19: Male II  
Problem Set 6: Male Reproductive Physiology

Lecture 20: Female I  
Lecture 21: Female II  
Lecture 22: Female III  
Lecture 23: Female IV  
Problem Set 7: Female Reproductive Physiology

### **Functional Genomics Research Assignment 3: Congenital Adrenal Hyperplasia**

Lecture 24: Pregnancy I  
Lecture 25: Pregnancy II  
Lecture 26: Pregnancy III  
Lecture 27: Pregnancy IV  
Lecture 28: Carbohydrate Metabolism in Pregnancy  
Lecture 29: Clinical Correlation: Assisted Reproductive Technologies I  
Lecture 30: Clinical Correlation: Assisted Reproductive Technologies II

Lecture 31: Integration-Pregnancy I  
Lecture 32: Integration-Pregnancy II  
Lecture 33: Integration- Pregnancy: A view from the fetus  
Problem Set 8: Pregnancy

Lecture 34: Adrenal Cortex I  
Lecture 35: Adrenal Cortex II  
Problem Set 9: Adrenal Cortex

Lecture 36: Thyroid I  
Lecture 37: Thyroid II  
Lecture 38: Clinical Correlation: Thyroid I  
Lecture 39: Clinical Correlation: Thyroid II  
Problem Set 10: Thyroid

**Final Examination**